

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (previously presented) A recombinant immunoconjugate, comprising a therapeutic agent or a detectable label covalently linked to an RFB4 disulfide-stabilized Fv (dsFv) having a variable heavy chain (V_H) comprising SEQ ID NO:2 in which a Cys residue is substituted for Arg at position 44; and a variable light chain (V_L) comprising SEQ ID NO:4 in which a Cys residue is substituted for Gly at position 100.
2. (original) The recombinant immunoconjugate of claim 1, wherein said therapeutic agent is a toxin.
3. (original) The recombinant immunoconjugate of claim 2, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.
4. (original) The recombinant immunoconjugate of claim 3, wherein said cytotoxic fragment is PE38.
- 5-6. (cancelled)
7. (previously presented) The recombinant immunoconjugate of claim 3, wherein said variable heavy (V_H) chain is covalently linked to the carboxyl terminus of said toxin.
8. (previously presented) The recombinant immunoconjugate of claim 5, wherein said V_H chain is covalently linked to said V_L chain through a linker peptide.
9. (previously presented) The recombinant immunoconjugate of claim 5, wherein said V_H chain is linked to said V_L chain through a cysteine-cysteine disulfide bond.

10. (original) The recombinant immunoconjugate of claim 8, wherein said linker peptide has the sequence of SEQ ID NO:5.

11. (previously presented) An expression cassette encoding a recombinant immunoconjugate comprising a sequence encoding for a toxin peptide and an RFB4 disulfide-stabilized Fv (dsFv) having a variable heavy chain (V_H) comprising SEQ ID NO:2 in which a Cys residue is substituted for Arg at position 44; and a variable light chain (V_L) comprising SEQ ID NO:4 in which a Cys residue is substituted for Gly at position 100.

12. (cancelled).

13. (original) The expression cassette of claim 11, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.

14. (original) The expression cassette of claim 11, wherein said cytotoxic fragment is PE38.

15. (cancelled)

16. (previously presented) The expression cassette of claim 12, further comprising a sequence encoding for a linker peptide having the sequence of SEQ ID NO:5.

17. (original) A host cell comprising an expression cassette of claim 11.

18-21 (cancelled)

22. (previously presented) A method for inhibiting the growth of a malignant B-cell that expresses a CD22 molecule on the surface of the cell, said method comprising:
contacting said malignant B-cell with an effective amount of a recombinant immunoconjugate of claim 1, thereby inhibiting the growth of the malignant B-cell.

23. (original) The method of claim 22, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.

24. (original) The method of claim 22, wherein said malignant B-cell is contacted *in vivo*.

25. (original) The method of claim 22, wherein said malignant B-cell is selected from the group consisting of: a rodent B-cell, a canine B-cell, and a primate B-cell.

26. (original) The method of claim 23, wherein said cytotoxic fragment is a PE38 fragment.

27-28. (cancelled)

29. (previously presented) The method of claim 23, wherein a variable heavy chain is covalently linked at the carboxyl terminus of said toxin.

30. (previously presented) The method of claim 29, wherein said V_H chain is covalently linked to said V_L chain through a linker peptide.

31. (original) The method of claim 29, wherein said V_H chain is linked to said V_L chain through a cysteine-cysteine disulfide bond.

32. (previously presented) The method of claim 30, wherein said linker peptide has the sequence of SEQ ID NO:5.

33-49. (cancelled)

50. (currently amended) A recombinant immunoconjugate, comprising a therapeutic agent or a detectable label covalently linked to a recombinant RFB4 disulfide-stabilized Fv (dsFv) antibody having a variable heavy chain (V_H) with a cysteine at amino acid position 44, which heavy chain comprises the complementarity determining regions (CDRs) of SEQ ID NO:2 and is at least 95% 90% identical to SEQ ID NO:2; and a variable light chain (V_L) with a cysteine at amino acid position 100, which light chain comprises the CDRs of SEQ ID NO:4 and is at least 95% 90% identical to SEQ ID NO:4; wherein the RFB4 dsFv antibody binds to the same epitope as a prototype RFB4 dsFv antibody comprising a variable heavy (V_H) chain

of SEQ ID NO:2, in which a Cys residue is substituted for Arg at position 44; and a variable light (V_L) chain of SEQ ID NO:4, in which a Cys residue is substituted for Gly at position 100, and wherein the RFB4 dsFv antibody has 90% or greater of the binding affinity of the prototype RFB4 dsFv antibody.

51. (previously presented) The recombinant immunoconjugate of claim 50, wherein said therapeutic agent is a toxin.

52. (previously presented) The recombinant immunoconjugate of claim 51, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.

53. (previously presented) The recombinant immunoconjugate of claim 52, wherein said cytotoxic fragment is PE38.

54. (previously presented) An expression cassette encoding a recombinant immunoconjugates of claim 51.

55. (previously presented) A host cell comprising an expression cassette of claim 54.

56. (new) A recombinant immunoconjugate, comprising a therapeutic agent or a detectable label covalently linked to a recombinant RFB4 disulfide-stabilized Fv (dsFv) antibody having a variable heavy chain (V_H) with a cysteine at amino acid position 44, which heavy chain is at least 95% identical to SEQ ID NO:2; and a variable light chain (V_L) with a cysteine at amino acid position 100, which light chain is at least 95% identical to SEQ ID NO:4.